

# Trends in Maternal Mortality: 1990 to 2013

Estimates by WHO, UNICEF, UNFPA, The World Bank  
and the United Nations Population Division

Executive Summary



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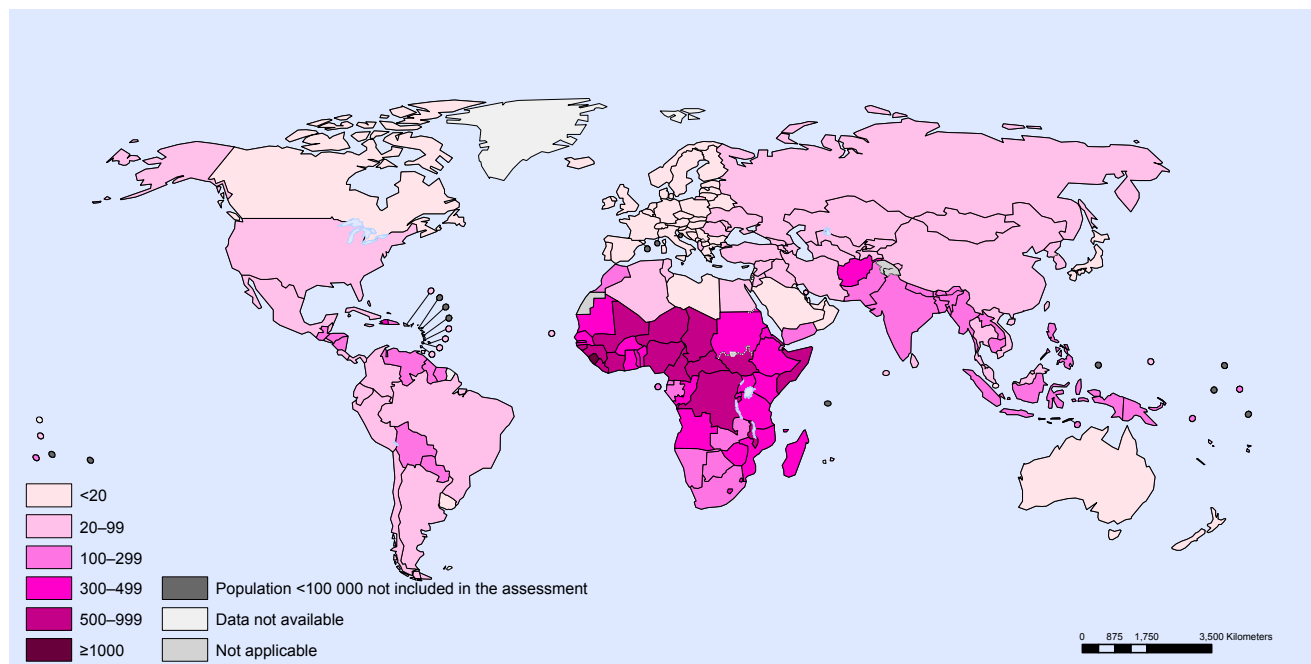
A number of initiatives that commenced in recent years are geared towards achievement of the fifth Millennium Development Goal (MDG5: improving maternal health), particularly following the launch of the Global Strategy for Women's and Children's Health in 2010 by the United Nations (UN) Secretary-General (1). Subsequently, the high-level Commission on Information and Accountability for Women's and Children's Health was established to "determine the most effective international institutional arrangements for global reporting, oversight and accountability on women's and children's health." One of the ten recommendations of the commission was specific to improving measurement of maternal (and child) deaths. This recommendation requires that "by 2015, all countries have taken significant steps to establish a system for registration of births, deaths and causes of death, and have well-functioning health information systems that combine data from facilities, administrative sources and surveys." The first report of the independent Expert Review Group (iERG), established by the commission for overseeing the progress in achievement of the commission's 10 recommendations, indicated insufficient progress in the implementation of the recommendations including the one on 'vital events' reporting (2).

Measuring the MDG5 target of reducing the maternal mortality ratio (MMR) (target 5A) remains a challenge.

Less than 40% of countries have a complete civil registration system with good attribution of cause of death, which is necessary for the accurate measurement of maternal mortality.

Estimates for 2013 are the seventh in a series of analyses by United Nations agencies. The Maternal Mortality Estimation Inter-Agency Group (MMEIG), comprising the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), The World Bank and the United Nations Population Division (UNPD), together with teams at the National University of Singapore and the University of California at Berkeley, have been working together to generate internationally comparable MMR estimates. A technical advisory group (TAG) provides additional independent technical guidance. The methods, as well as the data sources for the estimation of MMR, have improved over time. Based on the achievement from the last round of analyses, newly available data collected by MMEIG and obtained during country consultations were incorporated, and trend estimates from 1990 to 2013 were generated. As with the previous round of estimates, the statistical codes and input data required to produce the current estimates are publicly available, underscoring the MMEIG's commitment to open access and transparency.

### Maternal mortality ratio (per 100 000 live births, 2013)



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Data Source: World Health Organization  
Map Production: Health Statistics and Information Systems (HSI)  
World Health Organization



**Table 1. Estimates of maternal mortality ratio (MMR, maternal deaths per 100 000 live births), number of maternal deaths, and lifetime risk by United Nations Millennium Development Goal region, 2013**

| Region                          | MMR <sup>a</sup> | Range of MMR uncertainty |                | Number of maternal deaths <sup>a</sup> | Lifetime risk of maternal death, 1 in: | AIDS-attributed MMR | Number of AIDS-related indirect maternal deaths attributed to HIV <sup>a</sup> | Percentage of AIDS-related indirect maternal deaths |
|---------------------------------|------------------|--------------------------|----------------|--|--|---------------------|--|---|
|                                 |                  | Lower estimate           | Upper estimate |  |  |                     |  |   |
| World                           | 210              | 160                      | 290            | 289 000                                | 190                                    | 5                   | 7500   | 2.6   |
| Developed regions               | 16               | 12                       | 23             | 2300                                   | 3700                                   | 0                   | 65   | 2.8   |
| Developing regions              | 230              | 180                      | 320            | 286 000                                | 160                                    | 6                   | 7400   | 2.6   |
| Northern Africa                 | 69               | 47                       | 110            | 2700                                   | 500                                    | 0                   | 9  | 0.3   |
| Sub-Saharan Africa              | 510              | 380                      | 730            | 179 000                                | 38                                     | 19                  | 6800   | 3.8   |
| Eastern Asia                    | 33               | 21                       | 54             | 6400                                   | 1800                                   | 0                   | 44   | 0.7   |
| Eastern Asia excluding China    | 54               | 35                       | 97             | 480                                    | 1200                                   | 0                   | 1  | 0.2   |
| Southern Asia                   | 190              | 130                      | 280            | 69 000                                 | 200                                    | 1                   | 340  | 0.5   |
| Southern Asia excluding India   | 170              | 110                      | 270            | 19 000                                 | 210                                    | 0                   | 20   | 0.1   |
| South-eastern Asia              | 140              | 98                       | 210            | 16 000                                 | 310                                    | 1                   | 110  | 0.7   |
| Western Asia                    | 74               | 50                       | 120            | 3600                                   | 450                                    | 0                   | 3  | 0.1   |
| Caucasus and Central Asia       | 39               | 31                       | 53             | 690                                    | 940                                    | 0                   | 7  | 0.9   |
| Latin America and the Caribbean | 85               | 66                       | 120            | 9300                                   | 520                                    | 1                   | 130  | 1.4   |
| Latin America                   | 77               | 59                       | 110            | 7900                                   | 570                                    | 1                   | 92   | 1.2   |
| Caribbean                       | 190              | 130                      | 310            | 1400                                   | 220                                    | 5                   | 39   | 2.8   |
| Oceania                         | 190              | 100                      | 380            | 510                                    | 140                                    | 2                   | 5  | 0.9   |

a The MMR, number of maternal deaths, and lifetime risk have been rounded according to the following scheme: <100, no rounding; 100–999, rounded to nearest 10; 1000–9999, rounded to nearest 100; and >10 000, rounded to nearest 1000.

Globally, there were an estimated 289 000 maternal deaths in 2013, a decline of 45% from 1990. The sub-Saharan Africa region alone accounted for 62% (179 000) of global deaths followed by Southern Asia at 24%. At the country level, the two countries that accounted for one third of all global maternal deaths are India at 17% (50 000) and Nigeria at 14% (40 000). The global MMR in 2013 was 210 maternal deaths per 100 000 live births, down from 380 maternal deaths per 100 000 live births in 1990. The MMR in developing regions (230) was 14 times higher than in developed regions (16). Sub-Saharan Africa has the highest MMR (510). Of the remaining MDG developing regions, five had low MMR: Eastern Asia (33); Caucasus and Central Asia (39); Northern Africa (69); Western Asia (74); and Latin America and the Caribbean (85). Three had moderate MMR: South-eastern Asia (140); Southern Asia (190); and Oceania (190).

Of the 40 countries with the highest MMR in 2013, Sierra Leone is estimated to have the highest MMR at 1100. A further 15 countries in sub-Saharan Africa have very high MMR: Chad (980); Central African Republic (880); Somalia (850); Burundi (740); Democratic Republic of the Congo (730); South Sudan (730); Côte d'Ivoire (720); Guinea (650); Liberia (640); Niger (630); Cameroon (590); Guinea-Bissau (560); Nigeria (560); Mali (550); and Malawi (510). Only two countries outside sub-Saharan African region had high MMR: Afghanistan (400) and Haiti (380). In contrast, Cabo Verde and Mauritius were the only two sub-Saharan African countries that had low MMR at 53 and 73 maternal deaths per 100 000 live births respectively. Regarding adult lifetime risk of maternal mortality, Chad and Somalia had the highest at 1 in 15 and 1 in 18, respectively. The estimated lifetime risk for maternal mortality in developing regions is 1 in 3700 in comparison to developed regions where the lifetime risk is 1 in 160.

Sub-Saharan Africa accounted for 6800 (91%) of the estimated 7500 maternal deaths attributed to acquired immunodeficiency syndrome (AIDS) worldwide. However, the proportion of maternal deaths attributed to AIDS in sub-Saharan Africa was relatively small (3.8%) yielding an AIDS-attributed MMR for sub-Saharan Africa of 19 maternal deaths per 100 000 live births. Although the MDG regional aggregated proportions of maternal deaths attributed to AIDS were relatively small, they were substantial for countries with high HIV prevalence. Thirteen countries had a proportion of maternal deaths attributed to AIDS of 10% or more.

While most countries/regions aspire to achieve MDG5 target 5A by 2015, some countries will unlikely attain this goal if current trends persist. An assessment of progress was made for countries with an MMR  $\geq$ 100 in 1990. Countries were categorized as 'on track' if their MMR had declined on average by 5.5% or more, which corresponds to a 75% reduction in MMR between 1990 and 2015.

The 11 countries categorized as 'on track' are: Maldives (93%), Bhutan (87%), Cambodia (86%), Equatorial Guinea (81%), Lao People's Democratic Republic (80%), Romania (80%), Timor-Leste (78%), Cabo Verde (77%), Eritrea (77%), Nepal (76%), Rwanda (76%). Countries with MMR <100 in 1990 are not categorized. A further 63 countries are characterized as 'making progress', while 13 countries have made 'insufficient progress'. There are two countries that have made 'no progress'.

#### References

1. Ban K. The Global Strategy for Women's and Children's Health. New York: United Nations; 2010.
2. The first report of the independent Expert Review Group (iERG) on Information and Accountability for Women's and Children's Health. Geneva: World Health Organization; 2012.

**Table 2. Trends in estimates of maternal mortality ratio (MMR, maternal deaths per 100 000 live births), 1990–2013, by country**

| Country     | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|-------------|------------------|------|------|------|------|--|---|--|----------------|
|             | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| Afghanistan | 1200             | 1200 | 1100 | 730  | 400  | -67  | -4.7  | -5.5   | -3.9           |
| Albania     | 31               | 29   | 28   | 24   | 21   | -33  | -1.7  | -2.3   | -1.1           |
| Algeria     | 160              | 140  | 120  | 100  | 89   | -44  | -2.5  | -2.9   | -2             |
| Angola      | 1400             | 1400 | 1100 | 750  | 460  | -68  | -4.9  | -8.8   | -0.7           |
| Argentina   | 71               | 60   | 63   | 70   | 69   | -2   | -0.1  | -0.5   | 0.4            |
| Armenia     | 47               | 51   | 43   | 37   | 29   | -39  | -2.1  | -2.5   | -1.7           |
| Australia   | 7                | 8    | 9    | 6    | 6    | -14  | -0.7  | -2.8   | 1.5            |
| Austria     | 10               | 7    | 5    | 5    | 4    | -64  | -4.3  | -8.5   | 0.1            |
| Azerbaijan  | 60               | 83   | 57   | 36   | 26   | -57  | -3.6  | -4.1   | -3.1           |
| Bahamas     | 43               | 44   | 44   | 40   | 37   | -14  | -0.7  | -1.5   | 0.4            |
| Bahrain     | 21               | 22   | 27   | 16   | 22   | 3  | 0.1   | -0.4   | 0.7            |
| Bangladesh  | 550              | 440  | 340  | 260  | 170  | -70  | -5  | -5.6   | -4.5           |
| Barbados    | 120              | 38   | 42   | 33   | 52   | -56  | -3.5  | -6.7   | -0.1           |
| Belarus     | 37               | 29   | 32   | 21   | 1    | -96  | -13.2   | -15  | -11.3          |
| Belgium     | 10               | 10   | 9    | 7    | 6    | -35  | -1.8  | -2   | -1.7           |
| Belize      | 75               | 35   | 110  | 79   | 45   | -40  | -2.2  | -4.8   | 0.6            |
| Benin       | 600              | 520  | 490  | 420  | 340  | -43  | -2.4  | -3   | -1.8           |
| Bhutan      | 900              | 610  | 390  | 240  | 120  | -87  | -8.4  | -9.5   | -7.3           |

| Country                               | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|---------------------------------------|------------------|------|------|------|------|--|---|--|----------------|
|                                       | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| Bolivia (Plurinational State of)      | 510              | 420  | 330  | 270  | 200  | -61  | -4  | -4.5   | -3.5           |
| Bosnia and Herzegovina                | 19               | 16   | 11   | 10   | 8    | -57  | -3.6  | -4.3   | -3             |
| Botswana                              | 360              | 370  | 390  | 340  | 170  | -52  | -3.1  | -4.1   | -1.8           |
| Brazil                                | 120              | 100  | 85   | 73   | 69   | -43  | -2.4  | -2.9   | -2             |
| Brunei Darussalam                     | 26               | 25   | 24   | 25   | 27   | 1  | 0   | -0.6   | 0.7            |
| Bulgaria                              | 24               | 22   | 29   | 14   | 5    | -78  | -6.3  | -8.2   | -4.4           |
| Burkina Faso                          | 770              | 680  | 580  | 500  | 400  | -49  | -2.9  | -3.4   | -2.3           |
| Burundi                               | 1300             | 1300 | 1000 | 910  | 740  | -41  | -2.3  | -3   | -1.5           |
| Cabo Verde                            | 230              | 140  | 84   | 63   | 53   | -77  | -6.2  | -10  | -2.1           |
| Cambodia                              | 1200             | 860  | 540  | 320  | 170  | -86  | -8.1  | -9   | -7.2           |
| Cameroon                              | 720              | 760  | 740  | 690  | 590  | -18  | -0.9  | -1.2   | -0.5           |
| Canada <sup>c</sup>                   | 6                | 7    | 7    | 11   | 11   | 81   | 2.6   | 0.5  | 4.7            |
| Central African Republic              | 1200             | 1200 | 1200 | 1100 | 880  | -27  | -1.3  | -1.6   | -1             |
| Chad                                  | 1700             | 1600 | 1500 | 1200 | 980  | -41  | -2.3  | -2.4   | -2             |
| Chile                                 | 55               | 40   | 29   | 26   | 22   | -60  | -3.9  | -5.7   | -2             |
| China                                 | 97               | 76   | 63   | 50   | 32   | -67  | -4.7  | -5.4   | -4             |
| Colombia                              | 100              | 81   | 130  | 97   | 83   | -17  | -0.8  | -2.5   | 0.9            |
| Comoros                               | 630              | 560  | 480  | 430  | 350  | -45  | -2.6  | -6.5   | 1.5            |
| Congo                                 | 670              | 650  | 610  | 530  | 410  | -39  | -2.1  | -2.7   | -1.5           |
| Costa Rica                            | 38               | 45   | 44   | 46   | 38   | -1   | -0.1  | -1.9   | 1.8            |
| Côte d'Ivoire                         | 740              | 710  | 670  | 750  | 720  | -3   | -0.1  | -0.5   | 0.3            |
| Croatia                               | 8                | 13   | 11   | 14   | 13   | 63   | 2.1   | -1.4   | 5.8            |
| Cuba                                  | 63               | 60   | 63   | 67   | 80   | 27   | 1   | -1   | 3.1            |
| Cyprus                                | 18               | 18   | 16   | 13   | 10   | -48  | -2.8  | -6.6   | 1.2            |
| Czech Republic                        | 15               | 9    | 7    | 7    | 5    | -67  | -4.7  | -6.9   | -2.4           |
| Democratic People's Republic of Korea | 85               | 83   | 120  | 110  | 87   | 3  | 0.1   | -4   | 4.3            |
| Democratic Republic of the Congo      | 1000             | 1100 | 1100 | 930  | 730  | -29  | -1.5  | -2.4   | -0.6           |
| Denmark                               | 9                | 16   | 9    | 8    | 5    | -50  | -2.9  | -7   | 1.2            |
| Djibouti                              | 400              | 390  | 360  | 310  | 230  | -43  | -2.4  | -6.4   | 1.7            |
| Dominican Republic                    | 240              | 180  | 120  | 130  | 100  | -57  | -3.6  | -4   | -3.2           |
| Ecuador                               | 160              | 130  | 120  | 98   | 87   | -44  | -2.5  | -2.9   | -2.1           |
| Egypt                                 | 120              | 96   | 75   | 62   | 45   | -62  | -4.1  | -4.8   | -3.4           |
| El Salvador                           | 110              | 96   | 80   | 72   | 69   | -39  | -2.1  | -2.6   | -1.6           |
| Equatorial Guinea                     | 1600             | 1300 | 790  | 480  | 290  | -81  | -7  | -8   | -5.9           |
| Eritrea                               | 1700             | 1000 | 670  | 530  | 380  | -77  | -6.2  | -6.8   | -5.6           |
| Estonia                               | 48               | 46   | 26   | 24   | 11   | -78  | -6.4  | -10.1  | -2.4           |
| Ethiopia                              | 1400             | 1200 | 990  | 740  | 420  | -69  | -5  | -5.4   | -4.6           |
| Fiji                                  | 89               | 79   | 72   | 69   | 59   | -34  | -1.8  | -2.1   | -1.5           |

| Country                          | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|----------------------------------|------------------|------|------|------|------|--|---|--|----------------|
|                                  | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| Finland                          | 6                | 5    | 7    | 9    | 4    | -36  | -1.9  | -4.3   | 0.6            |
| France                           | 12               | 10   | 9    | 8    | 9    | -31  | -1.6  | -3.5   | 0.3            |
| Gabon                            | 380              | 340  | 330  | 300  | 240  | -37  | -2  | -2.5   | -1.2           |
| Gambia                           | 710              | 660  | 580  | 510  | 430  | -39  | -2.1  | -6   | 2              |
| Georgia                          | 50               | 67   | 60   | 48   | 41   | -18  | -0.9  | -1.1   | -0.6           |
| Germany                          | 13               | 8    | 7    | 7    | 7    | -47  | -2.7  | -3.7   | -1.8           |
| Ghana                            | 760              | 650  | 570  | 470  | 380  | -49  | -2.9  | -3.2   | -2.5           |
| Greece                           | 6                | 2    | 5    | 3    | 5    | -5   | -0.2  | -4.1   | 3.9            |
| Grenada                          | 34               | 33   | 29   | 25   | 23   | -33  | -1.7  | -2.2   | -1.2           |
| Guatemala                        | 270              | 220  | 160  | 140  | 140  | -49  | -2.8  | -4.6   | -1             |
| Guinea                           | 1100             | 1000 | 950  | 800  | 650  | -40  | -2.2  | -2.6   | -1.8           |
| Guinea-Bissau                    | 930              | 790  | 840  | 760  | 560  | -40  | -2.2  | -6   | 1.8            |
| Guyana                           | 210              | 230  | 240  | 240  | 250  | 16   | 0.6   | 0.4  | 0.8            |
| Haiti                            | 670              | 580  | 510  | 470  | 380  | -43  | -2.4  | -2.9   | -1.9           |
| Honduras                         | 290              | 200  | 150  | 130  | 120  | -60  | -3.9  | -4.5   | -3.2           |
| Hungary                          | 23               | 23   | 10   | 13   | 14   | -39  | -2.1  | -4.1   | -0.2           |
| Iceland                          | 7                | 7    | 6    | 6    | 4    | -45  | -2.5  | -2.7   | -2.4           |
| India                            | 560              | 460  | 370  | 280  | 190  | -65  | -4.5  | -4.9   | -4             |
| Indonesia                        | 430              | 360  | 310  | 250  | 190  | -56  | -3.5  | -4   | -3.1           |
| Iran (Islamic Republic of)       | 83               | 60   | 44   | 31   | 23   | -72  | -5.3  | -6   | -4.7           |
| Iraq                             | 110              | 84   | 71   | 77   | 67   | -37  | -2  | -2.6   | -1.4           |
| Ireland                          | 6                | 4    | 6    | 2    | 9    | 33   | 1.2   | -1.6   | 4.1            |
| Israel                           | 12               | 10   | 9    | 7    | 2    | -84  | -7.6  | -10.2  | -5             |
| Italy                            | 10               | 6    | 4    | 5    | 4    | -60  | -3.9  | -5.8   | -2             |
| Jamaica                          | 98               | 89   | 88   | 85   | 80   | -18  | -0.8  | -1.2   | -0.5           |
| Japan                            | 14               | 10   | 10   | 7    | 6    | -57  | -3.6  | -4.5   | -2.8           |
| Jordan                           | 86               | 73   | 65   | 58   | 50   | -42  | -2.3  | -2.7   | -1.9           |
| Kazakhstan                       | 91               | 91   | 71   | 50   | 26   | -71  | -5.3  | -7.2   | -3.3           |
| Kenya                            | 490              | 530  | 570  | 550  | 400  | -17  | -0.8  | -1.1   | -0.4           |
| Kiribati                         | 250              | 240  | 200  | 170  | 130  | -47  | -2.7  | -6.6   | 1.3            |
| Kuwait                           | 12               | 10   | 8    | 6    | 14   | 13   | 0.6   | -4.4   | 5.7            |
| Kyrgyzstan                       | 85               | 120  | 100  | 92   | 75   | -11  | -0.5  | -0.8   | -0.2           |
| Lao People's Democratic Republic | 1100             | 830  | 600  | 410  | 220  | -80  | -6.8  | -7.4   | -6.3           |
| Latvia                           | 57               | 58   | 42   | 21   | 13   | -77  | -6.1  | -8.7   | -3.5           |
| Lebanon                          | 64               | 47   | 37   | 26   | 16   | -76  | -6  | -6.5   | -5.4           |
| Lesotho                          | 720              | 630  | 680  | 670  | 490  | -32  | -1.7  | -2.4   | -0.6           |
| Liberia                          | 1200             | 1600 | 1100 | 880  | 640  | -48  | -2.8  | -3.2   | -2.4           |
| Libya                            | 31               | 25   | 21   | 17   | 15   | -52  | -3.1  | -3.6   | -2.7           |
| Lithuania                        | 34               | 21   | 20   | 11   | 11   | -68  | -4.8  | -7.7   | -1.8           |

| Country                                     | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|---|------------------|------|------|------|------|--|---|--|----------------|
|   | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| Luxembourg                                  | 6                | 11   | 11   | 17   | 11   | 83   | 2.7   | -2.3   | 8              |
| Madagascar                                  | 740              | 640  | 550  | 530  | 440  | -41  | -2.3  | -2.7   | -1.8           |
| Malawi                                      | 1100             | 870  | 750  | 570  | 510  | -53  | -3.2  | -3.4   | -2.9           |
| Malaysia                                    | 56               | 45   | 40   | 36   | 29   | -48  | -2.8  | -3.3   | -2.3           |
| Maldives                                    | 430              | 210  | 110  | 57   | 31   | -93  | -10.8   | -11.5  | -10.2          |
| Mali  | 1100             | 1000 | 860  | 710  | 550  | -51  | -3.1  | -3.4   | -2.7           |
| Malta                                       | 12               | 11   | 11   | 9    | 9    | -31  | -1.6  | -2   | -1.2           |
| Mauritania                                  | 630              | 550  | 480  | 400  | 320  | -49  | -2.9  | -3.3   | -2.4           |
| Mauritius                                   | 70               | 68   | 28   | 35   | 73   | 4  | 0.2   | -2.4   | 2.7            |
| Mexico                                      | 88               | 77   | 67   | 50   | 49   | -45  | -2.5  | -4.4   | -0.7           |
| Micronesia (Federated States of)            | 170              | 140  | 130  | 120  | 96   | -44  | -2.5  | -6.6   | 1.6            |
| Mongolia                                    | 100              | 120  | 120  | 89   | 68   | -34  | -1.8  | -2.2   | -1.3           |
| Montenegro                                  | 8                | 9    | 10   | 8    | 7    | -12  | -0.6  | -0.7   | -0.4           |
| Morocco                                     | 310              | 240  | 200  | 160  | 120  | -61  | -4.1  | -4.7   | -3.4           |
| Mozambique                                  | 1300             | 1100 | 870  | 680  | 480  | -64  | -4.3  | -4.9   | -3.4           |
| Myanmar                                     | 580              | 470  | 360  | 260  | 200  | -65  | -4.5  | -5   | -4             |
| Namibia                                     | 320              | 280  | 270  | 250  | 130  | -58  | -3.7  | -4.3   | -2.7           |
| Nepal                                       | 790              | 580  | 430  | 310  | 190  | -76  | -6  | -6.6   | -5.4           |
| Netherlands                                 | 11               | 11   | 15   | 10   | 6    | -51  | -3  | -5.1   | -0.9           |
| New Zealand                                 | 18               | 13   | 12   | 12   | 8    | -57  | -3.6  | -5.8   | -1.5           |
| Nicaragua                                   | 170              | 160  | 140  | 120  | 100  | -38  | -2.1  | -2.6   | -1.6           |
| Niger                                       | 1000             | 920  | 850  | 760  | 630  | -37  | -2  | -2.3   | -1.6           |
| Nigeria                                     | 1200             | 1100 | 950  | 740  | 560  | -52  | -3.1  | -3.4   | -2.8           |
| Norway                                      | 9                | 4    | 8    | 9    | 4    | -61  | -4  | -7.6   | -0.2           |
| Occupied Palestinian Territory <sup>d</sup> | 96               | 71   | 59   | 59   | 47   | -51  | -3  | -6.9   | 1              |
| Oman  | 48               | 32   | 22   | 16   | 11   | -77  | -6.2  | -6.9   | -5.6           |
| Pakistan                                    | 400              | 330  | 280  | 230  | 170  | -57  | -3.6  | -4.1   | -3             |
| Panama                                      | 98               | 91   | 79   | 83   | 85   | -14  | -0.6  | -2.5   | 1.3            |
| Papua New Guinea                            | 470              | 370  | 340  | 280  | 220  | -54  | -3.3  | -7.2   | 0.8            |
| Paraguay                                    | 130              | 130  | 120  | 130  | 110  | -19  | -0.9  | -1.3   | -0.6           |
| Peru  | 250              | 220  | 160  | 120  | 89   | -64  | -4.4  | -4.9   | -3.8           |
| Philippines                                 | 110              | 130  | 120  | 130  | 120  | 15   | 0.6   | -1.1   | 2.4            |
| Poland                                      | 17               | 14   | 8    | 5    | 3    | -81  | -6.9  | -8.5   | -5.3           |
| Portugal                                    | 15               | 10   | 11   | 11   | 8    | -44  | -2.5  | -5.2   | 0.6            |
| Puerto Rico                                 | 29               | 28   | 24   | 21   | 20   | -31  | -1.6  | -1.9   | -1.3           |
| Qatar                                       | 11               | 11   | 9    | 8    | 6    | -51  | -3  | -7   | 1.1            |
| Republic of Korea                           | 18               | 18   | 19   | 18   | 27   | 53   | 1.9   | 0.8  | 3              |
| Republic of Moldova                         | 61               | 59   | 39   | 25   | 21   | -66  | -4.6  | -6.9   | -2.2           |



| Country                                   | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|---|------------------|------|------|------|------|--|---|--|----------------|
|   | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| Romania                                   | 170              | 72   | 53   | 30   | 33   | -80  | -6.8  | -7.8   | -5.7           |
| Russian Federation                        | 74               | 72   | 57   | 37   | 24   | -68  | -4.8  | -6.5   | -3             |
| Rwanda                                    | 1400             | 1400 | 1000 | 610  | 320  | -76  | -6.1  | -6.8   | -5.4           |
| Saint Lucia                               | 60               | 52   | 44   | 39   | 34   | -43  | -2.4  | -3.1   | -1.8           |
| Saint Vincent and the Grenadines          | 48               | 72   | 75   | 55   | 45   | -7   | -0.3  | -0.8   | 0.1            |
| Samoa                                     | 150              | 110  | 89   | 73   | 58   | -60  | -3.9  | -7.9   | 0.2            |
| Sao Tome and Principe                     | 410              | 360  | 300  | 260  | 210  | -48  | -2.8  | -3.3   | -2.3           |
| Saudi Arabia                              | 41               | 31   | 24   | 19   | 16   | -61  | -4  | -4.6   | -3.4           |
| Senegal                                   | 530              | 510  | 480  | 420  | 320  | -40  | -2.2  | -2.5   | -1.9           |
| Serbia                                    | 18               | 20   | 7    | 8    | 16   | -12  | -0.5  | -3.3   | 2.4            |
| Sierra Leone                              | 2300             | 2400 | 2200 | 1600 | 1100 | -54  | -3.3  | -4   | -2.7           |
| Singapore                                 | 8                | 8    | 19   | 10   | 6    | -30  | -1.5  | -4.8   | 1.8            |
| Slovakia                                  | 15               | 10   | 12   | 6    | 7    | -54  | -3.4  | -5.5   | -1             |
| Slovenia                                  | 11               | 11   | 12   | 15   | 7    | -34  | -1.8  | -4.6   | 1              |
| Solomon Islands                           | 320              | 250  | 210  | 170  | 130  | -59  | -3.8  | -7.7   | 0.2            |
| Somalia                                   | 1300             | 1300 | 1200 | 1100 | 850  | -34  | -1.8  | -5.8   | 2.3            |
| South Africa                              | 150              | 140  | 150  | 160  | 140  | -9   | -0.4  | -2.2   | 2.4            |
| South Sudan                               | 1800             | 1500 | 1200 | 1000 | 730  | -59  | -3.8  | -4.2   | -3.5           |
| Spain                                     | 7                | 4    | 5    | 6    | 4    | -36  | -1.9  | -3.7   | 0              |
| Sri Lanka                                 | 49               | 71   | 55   | 41   | 29   | -40  | -2.2  | -2.5   | -1.9           |
| Sudan                                     | 720              | 640  | 540  | 460  | 360  | -50  | -3  | -3.3   | -2.7           |
| Suriname                                  | 84               | 39   | 120  | 110  | 130  | 54   | 1.9   | -0.1   | 3.9            |
| Swaziland                                 | 550              | 480  | 520  | 480  | 310  | -44  | -2.5  | -3.4   | -0.4           |
| Sweden                                    | 6                | 5    | 5    | 4    | 4    | -34  | -1.8  | -4.6   | 1.3            |
| Switzerland                               | 8                | 8    | 7    | 8    | 6    | -29  | -1.5  | -5.4   | 2.7            |
| Syrian Arab Republic                      | 130              | 94   | 75   | 58   | 49   | -64  | -4.3  | -4.8   | -3.8           |
| Tajikistan                                | 68               | 120  | 89   | 59   | 44   | -36  | -1.9  | -2.3   | -1.5           |
| Thailand                                  | 42               | 37   | 40   | 34   | 26   | -37  | -2  | -2.6   | -1.3           |
| The former Yugoslav Republic of Macedonia | 15               | 13   | 15   | 14   | 7    | -57  | -3.6  | -8.4   | 1.2            |
| Timor-Leste                               | 1200             | 1000 | 680  | 500  | 270  | -78  | -6.4  | -6.8   | -6.1           |
| Togo                                      | 660              | 660  | 580  | 510  | 450  | -31  | -1.6  | -2   | -1.1           |
| Tonga                                     | 71               | 89   | 91   | 100  | 120  | 72   | 2.4   | -1.8   | 6.7            |
| Trinidad and Tobago                       | 89               | 91   | 59   | 58   | 84   | -6   | -0.3  | -2.3   | 1.9            |
| Tunisia                                   | 91               | 81   | 65   | 55   | 46   | -50  | -3  | -3.4   | -2.5           |
| Turkey                                    | 48               | 39   | 33   | 27   | 20   | -57  | -3.6  | -4   | -3.2           |
| Turkmenistan                              | 66               | 79   | 81   | 76   | 61   | -7   | -0.3  | -4.3   | 3.9            |
| Uganda                                    | 780              | 740  | 650  | 510  | 360  | -53  | -3.2  | -3.6   | -2.9           |
| Ukraine                                   | 49               | 45   | 35   | 25   | 23   | -54  | -3.3  | -4   | -2.5           |

| Country                            | MMR <sup>a</sup> |      |      |      |      | % change in MMR between 1990 and 2013 <sup>b</sup> | Average annual % change in MMR between 1990 and 2013 <sup>b</sup> | Range of uncertainty on annual % change in MMR |                |
|------------------------------------|------------------|------|------|------|------|--|---|--|----------------|
|                                    | 1990             | 1995 | 2000 | 2005 | 2013 |  |   | Lower estimate                                 | Upper estimate |
| United Arab Emirates               | 16               | 13   | 11   | 8    | 8    | -53  | -3.3  | -7.2   | 1              |
| United Kingdom                     | 10               | 11   | 11   | 12   | 8    | -24  | -1.2  | -3.1   | 0.8            |
| United Republic of Tanzania        | 910              | 890  | 770  | 610  | 410  | -55  | -3.5  | -3.7   | -3.1           |
| United States of America           | 12               | 11   | 13   | 17   | 28   | 136  | 3.8   | 1.8  | 5.8            |
| Uruguay                            | 42               | 34   | 35   | 32   | 14   | -67  | -4.8  | -6.3   | -3.1           |
| Uzbekistan                         | 66               | 54   | 48   | 44   | 36   | -45  | -2.6  | -3   | -2.2           |
| Vanuatu                            | 170              | 140  | 120  | 100  | 86   | -49  | -2.9  | -6.8   | 1.4            |
| Venezuela (Bolivarian Republic of) | 93               | 98   | 91   | 94   | 110  | 16   | 0.6   | -1.2   | 2.6            |
| Viet Nam                           | 140              | 110  | 82   | 60   | 49   | -64  | -4.4  | -4.9   | -3.8           |
| Yemen                              | 460              | 420  | 370  | 330  | 270  | -41  | -2.3  | -2.8   | -1.7           |
| Zambia                             | 580              | 630  | 610  | 430  | 280  | -51  | -3.1  | -3.4   | -2.4           |
| Zimbabwe                           | 520              | 550  | 680  | 740  | 470  | -10  | -0.4  | -0.8   | 0              |

Estimates have been computed to ensure comparability across countries; thus they are not necessarily the same as official statistics of the countries, which may use alternative rigorous methods.

- a MMR estimates have been rounded according to the following scheme: <100, no rounding; 100–999, rounded to nearest 10; and >1000, rounded to nearest 100.
- b Negative values indicate a decreasing MMR from 1990 to 2013, while positive values indicate an increasing MMR. Percentages have been calculated using unrounded estimates. The average annual % change is estimated by:

$$\left[ \left( \frac{MMR\ 2013}{MMR\ 1990} \right)^{\frac{1}{2013-1990}} - 1 \right] \times 100$$

- c Vital registration data were available for analysis only up to 2009. Recent hospital surveillance data for Canada excluding Quebec indicate a decline of maternal deaths per 100 000 deliveries from 8.8 in 2007–2009 to 6.1 in 2009–2011. 98% of deliveries in Canada occur in hospitals.
- d Refers to a territory.



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